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Ordo Megasecoptera

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CARBONIFEROUS INSECTS FROM ARGENTINA

III - FAMILIA XENOPTERIDAE PINTO, NOV.

ORDO MEGASECOPTERA

Irajá Damiani Pinto*

SINOPSE

É descrita uma nova espécie de inseto: *Xenoptera riojaensis* Pinto, gen. et sp.nov. pertencente a nova família: Xenopteridae, ordem Megasecoptera do Carbonífero da Argentina.

ABSTRACT

Here is described a new insect *Xenoptera riojaensis* Pinto, gen. et sp.nov. from a new family Xenopteridae, ordo Megasecoptera from the Carboniferous of Argentina.

INTRODUCTION

A few years ago, Prof. Sergio Archangelsky brought to the attention of the author a rock containing a relatively well preserved fossil of an insect.

In studying it, several important characteristics were found, which correspond typically to the primitive Megasecoptera.

GEOGRAPHICAL, STRATIGRAPHICAL AND PALAEOECOLOGICAL DATA

The sample was collected, at section II (1978) Malanzan Fm. at Cuestita de la Herradura, Sierra de los Llanos at La Rioja (Malanzan), Argentina, by Raul R. Leguizamón and Sergio Archangelsky.

Archangelsky (1977) discussed the stratigraphical position of the plant *Bergiopteris* and associated paleoflora from the sediments of Cuestita de la Herradura, where the fossil insect was collected, and reached

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the conclusion that *Bergiopteris* is associated to a Paleoflora referred to the ages of Tupense and Trampeaderense. So, a distinct dating was attributed to the group of beds with *Bergiopteris*, namely Namurian (reaching also the Stephanian) or Westphalian and certainly of Carboniferous age. Later on the same author (Archangelsky, 1978) in a work about the Paleogeology of the Upper Paleozoic of Argentina discussed again the stratigraphical position and also gave some ideas about the possible environment. He says that in the area was a mountain system which was a source of an ample sewed fluvial system which flowed into the sea.

He recognised that the place where the insect was found the environment, was probably an alluvial plain with basically mesophilic vegetation built by fronds of Pteridosperms and or Progymnosperms such as *Botrychipsis*, *Rhacopteris*, *Bergiopteris*, "*Sphenopteridium*" and others, not yet described.

Based on this plant association, fig. 2, he reaches the conclusion that it corresponds to the Middle Carboniferous (Westphalian). However Riek-Kukalova (1984) based on insect wings say: "It seems, therefore, that the horizon may be older than early Westphalian, and may be at least of Namurian age, as shown by palynological analysis. From a study of the insects alone, an even older age is not excluded".

The insect here described shows a very primitive structure as those described by Riek-Kukalova (op.cit.) so the definite age rest a question mark.

AKNOWLEDGMENTS

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SYSTEMATICS

Classis insecta
Infra-classis Palaeoptera
Super-ordo Palaeodictyopteroidea
Ordo Megasecoptera
Familia Xenopteridae Pinto, fam.nov.

Four wing elongate, permanently spread out and nearly homonomous, with the base narrowed but not petiolate. Costal space relatively broad. The stems of main veins independent. MA fused for some distance to Rs; CuA sending out an arch and strout to M; anal veins raising from the base of the wing free from CuP. Legs spiny and tarsi appearing five-segmented.

This family presents seta all around the wing margin; Sc fuses with R and C at midlength of the wing; MA and CuA simple.

REMARKS This taxon shows veinal pattern and fusions similar to Aleo-neuridae Kukalova-Peck, 1975 (L. Permian of Moravia), but the costal area and wing base are broader. These characters indicate that Xenopteridae are more primitive.

Genus *Xenoptera* Pinto, gen.nov.

DIAGNOSIS Costal margin moderately concave, just before Sc links to C; Sc links to R and C just before mid-length; three pectinate branches of Rs; generally one or two cross-veins between the veins. Several dark spot are seen irregularly distributed in wing cells.

Type-species *Xenoptera riojaensis* Pinto, gen. et sp.nov.

Xenoptera riojaensis, Pinto, gen. et sp.nov.

Pl. I; Pl. II.

Designatio nominis: Xenos (Greek)=
strange; ptera (Latin)=winged
Holotypus: An counter imprint of
insect. Mus. La Plata PZ inv. 19890
Locus typicus: Cuestita de la Her-
radura, Sierra de Los Llanos, La
Rioja, Argentina
Stratum typicum: Divisoria member
Fm. Malanzan
Carboniferous: Namurian-Westphalian

DIMENSIONS Fore-wing 27.0mm long and 7.0mm wide; hind-wing 27.6mm long
and 8.0mm wide.

PRESERVATION This species is based on an incomplete specimen. The body is not well preserved, but the right wings are almost complete. It shows an incomplete left hind-wing and over it one spiny leg. The fore-wing and hind wing are similar in shape, with the hind-wing slightly larger.

DESCRIPTION The greatest width of wings amounts to scarcely one-third the length and lies somewhere in the apical half or the middle of the fore-wing and at the middle in the hind-wing. The margin is spinose all around; the apex is rounded off abliquely; the costal margin is almost straight being slightly concave before the mid-length; the posterior margin is slightly convex, scalloped.

The costal area is narrow with few cross-veins. All main veins arise independently. The ScP fuses with the RA and C just after mid-length. RA simple, close to ScP, ends at the apex of the wing. RP originating at 1/4 of the length with three branches extending obliquely to the apical border. The stem of M parallel and not far removed from R until a cross-vein which links it to R. From this point it turns toward the posterior margin and bifurcates just before the origin of RP; the single anterior branch, MA, links for a short distance to RP and runs in a soft curve parallel other branches until the posterior margin; the MP branches bifurcates once at mid-way and the twings run parallel to MA until the inner margin. The stem of Cu also runs parallel to M and soon bifurcates forming two single branches: CuA and CuP. CuA links to M by a short strut just after the short cross-vein which links M to R. CuA and CuP run also parallel to MP.

Three to four independ anterior anal veins extend in strong curves to the posterior margin. The fore and hind-wings show slight difference in the number and branching of the anal veins. The right hind-wing presents even more diversity in the number and position of the anal branches. Straight cross-veins stand perpendicular to the course of the veins, one or two between branches, except between M+MP and CuA there are three, and between some anals, Rs and its first branch there is none. A feeble archedyction is seen at the proximal area of the wing.

It is seen only one spiny hind leg in which the basitarsus through posttarsus 46.5mm, tarsus with 4 subsegments, patello-tibia 38.0mm, femur 32.0mm. A coxal exite is present.

The preservation of the abdomen is not good and only one of the abdominal legs, which has 8 segments, is seen.

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